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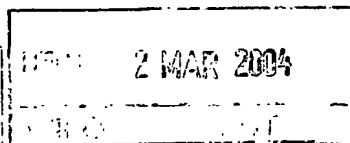


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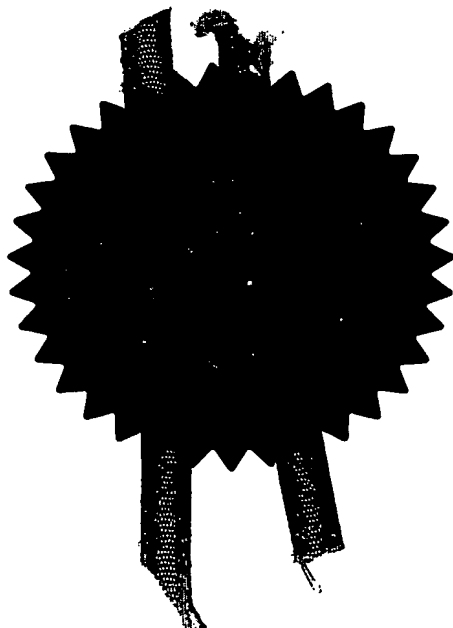


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0228380.2

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JACQUELINE ANNE MOORE
43 HIGHFIELD AVENUE
NEWBOLD
CHESTERFIELD
DERBYSHIRE
S41 7AU

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

7591340001

4. Title of the invention

TACTILE GUIDANCE DOORPLATE

5. Name of your agent (if you have one)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

MRS JACQUELINE ANNE MOORE
43 HIGHFIELD AVENUE
NEWBOLD
CHESTERFIELD
DERBYSHIRE
S41 7AU

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11. I/We request the grant of a patent on the basis of this application.

Signature Jackie Moore

Date 03/12/02

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TACTILE GUIDANCE DOORPLATE

The present invention relates to a tactile guidance doorplate to allow a user to identify a door which would lead to a route within a building, means of transport, or premises in conditions of low light or poor visibility. The route can be to an exit, collection point, emergency equipment or any pre-determined location as required.

As such, it is a first object of the present invention to provide a distinctive tactile marker which differentiates a door that should be used in a certain situation, such as an emergency evacuation, from that which should not.

The use of directional signs such as exit signs are well known and are an adopted method of directing people towards stairways and safe exit points during everyday use and in the case of an emergency, such as in the event of a fire. These signs are generally in the form of a visual aid, such as an image or text.

A problem associated with visual aids is that they rely on a person exiting the building, means of transport or premises to either see or understand the language of the text or the image on the sign. In addition, although exit signs are often illuminated to assist safe exit in low light situations, the signs are not useful for blind or visually impaired people and those with poor eyesight. In certain situations, such as in dense smoke, signs become quickly obscured and are not useful to people with normal vision.

A tactile guidance doorplate, situated in such a place on a door to allow the user to touch it, provided either independently or in addition to the visual aids can be used to allow a person to be directed through the correct door to an exit irrespective of visibility within the premises, means of transport, building, the visual capability of the person or the ability of a person to understand a particular language or particular images.

For example, it would be particularly helpful to a visually disabled person if a doorplate imparted information as to the effectiveness or appropriateness of using a particular door in certain situations. For instance, were a blind or visually impaired person (or a person who is rendered blind or visually impaired by ambient conditions or circumstance such as the presence of smoke or noxious and irritant fumes) to arrive at a door, it would be of the utmost importance to be able to identify by touch whether that door constituted a door which was part of, or in whole, an exit route.

Furthermore, it would be of great benefit if the user were able, again by tactile interrogation, to determine in which direction to proceed after passing through the door and so aid an effective evacuation. It is a further object of the present invention to provide by tactile means an indication of the correct direction to travel after passing through the door.

It is still a further object of the present invention to provide a doorplate or area that can be accommodated and accepted in a plurality of applications and one that is aesthetically pleasing and acceptable and may be readily incorporated within existing or newly constructed applications.

It is still a further object of the present invention to provide a doorplate which can be used to assist blind or visually impaired people to navigate their way along a particular route in a non-emergency situation.

In prior art various plates are known for protecting the surface coating of the door from mechanical abrasion, soiling and other degradation, or to provide decorative addition. However, the Applicant is unaware of any such device including all of the features and aspects of the present invention.

According to a first aspect of the present invention there is provided a tactile guidance doorplate, said tactile guidance doorplate comprising a plurality of raised or indented features in a first form located at a pre-determined area on a door surface to identify a door through which to proceed by the user to a

particular location, the user identifying the correct door by feeling the tactile guidance doorplate by using a sensory part of their body, and wherein one or more tactile indicators are provided in a least a second form on the said surface, the tactile indicators in said at least second form indicating to a user that they are required to proceed in a particular direction after moving through the door in order to reach said particular location.

Typically, if the route to be followed after going through the door incorporates a turn or change in direction or continuation of the current direction, the tactile indicators in said at least second form are located on the tactile guidance doorplate, such that the user feels the first form of indicators to identify the correct door, encounters the second form of indicators and proceeds through the door and in a particular direction to reach said particular location, or comes across further tactile guidance doorplates, and so on.

Preferably the tactile indicators of said first form have one or more features which are clearly and easily distinguishable from the tactile indicators of said at least second form.

In one embodiment the identification of the correct door involves the user making contact with the first form of tactile indicators on the surface of the door.

In one embodiment the second form of tactile indicators includes an indicator as to the required direction or change of direction to be made in which to proceed once immediately through the door, for example turn right after going through the door.

Preferably the tactile indicators in said first and at least second forms are provided, where possible, on the surface of the doors along the route of travel/movement required to reach the particular location from any other pre-determined location.

Preferably the surface on which the tactile indicators are provided is any or any combination of door surface, handrail surface, or mounting medium attachable to, or integral part of, any of the aforementioned surfaces. The indicators can be provided at any or any combinations of height or position on the surface.

The suitable supporting medium or mounting medium can be in the form of a material which is adapted to be secured to, or be an integral part of, a door or handrail surface.

Preferably securing means for securing the mounting medium to a surface can be any or any combination of adhesive, clips, screws, nuts and bolts and/or the like.

The door or handrail surface are typically provided in a building, premises or means of transport and the particular location therein is typically an exit.

Preferably the tactile indicators of said first and at least second from differ in any or any combination of shape, texture, size, orientation, spatial arrangement and/or the like.

Preferably the tactile indicators are in the form of raised protrusions or indents or holes on said surface in any suitable shape. The protrusions or indents or holes can be embossed, machined or moulded on or in the surface or suitable medium mounted on the surface.

In one embodiment the first form of tactile indicator is in the form of a dome shape. The at least second form of tactile indicator is in the form of a tapered shape having an inclined surface, the direction of the incline indicating to the user the correct direction to travel once through the door. (Typically the incline is from a low point to a high point relative to the surface in the direction of movement).

Preferably the sensory part of the user's body used to feel the tactile indicators is a hand, foot, arm, leg and/or the like.

Preferably the tactile guidance doorplates are provided with illumination means to improve the visibility and orientation of the indicators to a user in low light conditions or darkness. Such illumination means could be by way of photoluminescent materials, electroluminescent lamps, light emitting diodes, tritium gas lighting devices or the like. Such illumination means may be employed to illuminate all of the tactile guidance doorplate or area of the door, or may illuminate specific sections thereof. In this case, the tactile guidance doorplate may be manufactured from a translucent or transparent material whereby the light source would be applied or positioned adjacent to the back face of the tactile guidance doorplate and be visible therethrough. It may also be manufactured from an opaque material and a coating of phosphorescent material applied to the surface.

The advantage of the present invention is that the tactile indicators of said at least first and second forms allow the user to be informed that the door is to be used to reach a particular location. The user may also be informed of the direction or change in direction of travel which they are required to make after immediately passing through the door to reach a particular location.

An embodiment of the present invention will now be described below with reference to the following figures, wherein:-

Figure 1 shows a perspective view of the tactile guidance doorplate with tactile indicators of a first form according to an embodiment of the present invention.

Figure 2 shows a cross-sectional view along the line A-A of Figure 1.

Figure 3 shows a cross-sectional view along the line A-A of Figure 1 in an alternative manufactured embodiment.

Figures 4 - 6 show a perspective view of a tactile guidance doorplate with tactile indicators of a first form and a tactile indicator of a second form for indicating the direction or change of direction to be made by the user.

Figure 7 shows an exploded view of a tactile door guidance plate according to an embodiment of the present invention.

Figure 8 shows a cross-sectional view along the line B-B of Figure 7.

Figure 9 shows a cross-sectional view along the line C-C of Figure 7.

Figure 10 shows a typical location of tactile guidance doorplates on a set of fire doors.

Figure 11 shows a plan view to illustrate the application of a tactile guidance doorplate for guiding a user to an emergency exit in a hotel building. The tactile guidance doorplate is typically provided on substantially all doors which lead to or along a fire evacuation route in the hotel building to guide a user located in any part of the hotel building to the nearest emergency exit.

The tactile guidance doorplate is for pedestrians and disabled people (who might be visually impaired) within the building and comprises first raised members 2 in the form of a plurality of raised dome shapes as shown in Figure 1. A further embodiment of the present invention comprises first raised members 2 and second raised member 5 in the form of a sloped shape as shown in Figure 4. The first and second members 2, 5 are provided fixed to supporting medium 1 as shown in Figure 1. The supporting medium can then be provided on any suitable surface such as a door, handrail and/or the like.

Referring to Figure 1, the suitable supporting medium is seen as a backing plate 1. It is also seen that raised members 2 are of such a form, spacing and shape that they pose no risk of causing harm or discomfort during tactile interrogation by the user.

With reference to Figure 2 the backing plate 1 and raised members 2 are of solid construction in a transparent material which has been manufactured by a process such as, but not limited to, casting. Illumination is provided in this embodiment by means of photoluminescent material 3 applied to the back surface of backing plate 1. Pressure sensitive adhesive 4 is applied to the back surface of photoluminescent material 3.

Referring now to Figure 3 the present invention is, in this embodiment, formed by a process such as embossing or vacuum forming and may be either an autonomous entity or form part of the fabric or construction of the door, door veneer or constituent material thereof. In the case of a non-autonomous and separate entity, illumination is provided in this embodiment by means of a photoluminescent material 3 applied to the back surface of backing plate 1. The pressure sensitive adhesive 4 is applied to back surface of the photoluminescent material 3. In this case the material used in manufacture would necessarily be transparent to allow the photoluminescent material to be visible.

Referring to Figure 4 in this embodiment the second member 5 gives additional tactile information. In order for a user to determine the correct direction in which to proceed after passing through the door, the user is required to move their hand over the second member 5. The slope of member 5 indicates the direction of correct travel to the user. In Figure 4 the correct direction of travel after passing through the door would be to the left.

Figure 5 shows a further embodiment of the present invention. In this embodiment, the raised member 5 guides the user to turn right after passing through the door.

Figure 6 shows a further embodiment of the present invention. In this embodiment, the raised member 5 informs the user that the correct direction of travel after passing through the door is straight ahead.

Figure 7 shows an alternative tactile pattern and an alternative method of incorporating the tactile members informing the user of the direction in which to progress after passing through the door. In this embodiment the plate 6 has 24 round holes 6a drilled or otherwise machined or formed. These holes extend through the plate. In this illustration the holes are parallel as if formed by a drill. They could be otherwise shaped, for instance being tapered from a larger diameter on the front face of the plate to a smaller diameter on the back surface of the plate, that surface which adjoins sheet material 7. The holes are not restricted to a circular geometry and may for instance be square or hexagonal or other shape. In this embodiment the tactile indicators 6a are uniformly spaced and form the primary tactile pattern which identifies the door as an exit door. It may well be that these holes are not uniform in spacing, geometry or shape or formation as long as they are a singular or plurality of shapes and forms that the person who is performing the tactile interrogation can interpret as a distinguishing feature. Plate 6 has a further feature in this illustration. Circular hole 6b passes all the way through the plate. This hole is counterbored such that the tactile direction indicator 7 may be fitted into the hole. This counterbore has a locating spigot such that slot 11 in the tactile direction indicator 7 locates and prevents the tactile direction indicator from rotating once the unit is assembled. In this embodiment a single locating feature is depicted. It is possible that this function can be achieved in other ways such as mating splines or altering the mating geometry of tactile direction indicator 7 and hole 6b to, for instance, mutually square. The tactile direction indicator 7 may be produced in many ways such as, but not limited to, casting, machining, injection molding or vacuum forming. This tactile direction indicator may be rotationally positioned within the mating hole to correctly imply the direction in which to progress after passing through the door. It is envisaged that the thickness and depths of materials and counterbores are such that the front and back surfaces of the tactile direction indicator 7 are flush with the respective front and back faces of plate 6. Illumination of the assembly in this embodiment is by way of photoluminescent material 9, it may however be substituted for an alternative

light source such as an electroluminescent panel, edge lit material or other means of illumination such as light emitting diodes, tritium gas lighting devices or the like. In this embodiment, photoluminescent material 9 is a protected from wear, dirt, mechanical damage and the like by a transparent sheet material 8, such as, but not limited to, polycarbonate. If either the plate 6 or tactile direction indicator 7 were produced in a transparent material, an instruction or information legend 13 may be included by for instance screen printing or adhesive vinyl applied or affixed to the surface of the photoluminescent sheet material 9. Other sites are equally possible and viable such as on the surface of sheet material 8 or on plate 6 and/or the like. Plate 10 is a backing plate comprising of a suitable material such as, but not limited to, aluminium. The assembly is affixed to the door in this embodiment by screws 12. Front plate 6 and tactile direction indicator 7 may be of a translucent, transparent or opaque material and the assembly may comprise of either all the components or one or more as deemed appropriate. For instance, should it be deemed that a form of illumination is not required in a certain application, it may be deemed appropriate to fit only plate 6 and tactile direction indicator 7 using screws 12. Again certain applications may be more suited to a different method of fixing such as adhesive.

It is intended that the provision of a source of illumination, such as photoluminescent material, will assist in the safe use of this present invention. For instance in a situation where the emergency lights have failed or are rendered inefficient by overhead smoke, the glow from photoluminescent material would lead people to the correct door. Referring again to Figure 7, in this embodiment, the photoluminescent material is a separate component of the assembly. It may however be that backing plate 10 be surface treated with a photoluminescent material thus negating the requirement for 9.

Figure 8 shows section B-B through plate 6 in Figure 7 and illustrates the spigot which mates with slot 11 on the tactile direction indicator 7 extends to the main bore of hole 6b.

Figure 9 shows section C-C through plate 6 in Figure 6 and illustrates the counterbore on hole 6b.

Figure 10 shows a typical placement of the tactile guidance doorplate. In this application the tactile guidance doorplate 22 is fixed on a pair of fire doors.

Illustrating a typical example of the use of this present invention, Figure 8 depicts a part of a building complex. This illustration shows, in plan view, part of a typical hotel corridor and adjoining rooms. Doors 13, 14, 15, 16, 17 and 18 are bedroom doors leading into or out of a bedroom. Doors 21 are fire exit doors and doors 19 and 20 are utility cupboard doors. Within the bedrooms, doors 13a, 14a, 15a, 16a, 17a and 18a are doors from the main area of the room to the en-suite bathroom. Doors 13b, 14b, 15b, 16b, 17b and 18b are wardrobe doors.

In this example we will for illustrative purposes, assume a person is occupying the bedroom accessed by door 14 from the corridor. Again for illustration purposes we will assume that this person is by reason of ambient conditions rendered visually impaired and a situation has arisen whereby that person must navigate from that person's room to the fire exit doors 21.

The first obstacle the person must overcome is to identify the correct door by which to exit the room. In the illustrative example there are doors which will not aid progress toward the fire exit doors 21. These are doors 14a and 14b (being bathroom and wardrobe doors respectively). Fixing a tactile guidance doorplate as depicted in Figure 1 to the room-side surface of door 14 would enable the person, by tactile interrogation, to identify that door as the correct door through which to exit into the corridor.

In this example, the person would be further assisted if it were made evident upon exiting the room into the corridor, which was the direction to proceed along to the fire exit doors 21. If the tactile guidance doorplate was as shown

in Figure 4, that person would be able to establish by tactile interrogation of the tactile guidance doorplate that not only did it possess raised members 2 but additionally raised member 5 which indicates to the user to proceed to the left after passing through the door.

Since the fire exit doors 21 are the only exit doors, it follows that it is only these doors which have the tactile guidance doorplates fitted on the corridor side. The

user therefore can establish by means of tactile interrogation that doors 13, 14, 15, 16, 17 and 18 along the escape route path are not escape path doors.

While the tactile guidance plate has been illustrated for use in a hotel building, it will be appreciated that it may be used in other buildings such as hospitals, offices, public buildings, residential homes, schools and airports or in public transport vehicles such as trains and ships.

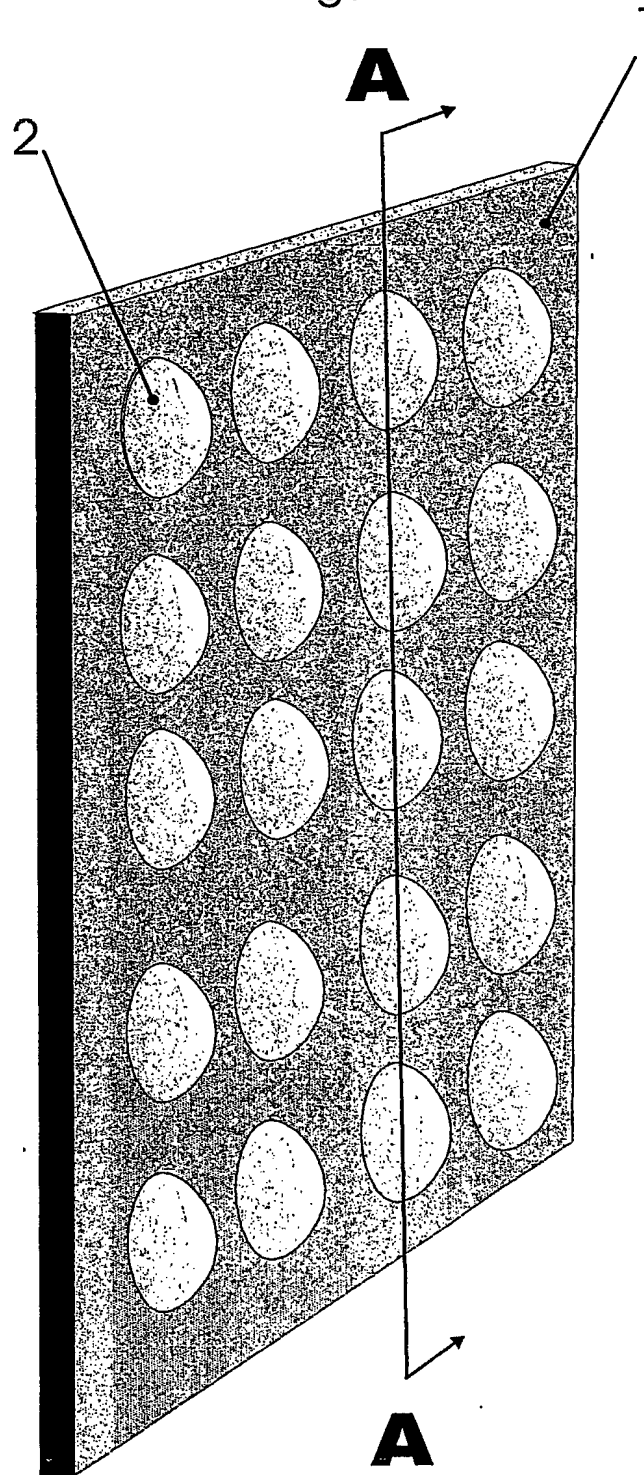
As such, an invention has been disclosed in terms of preferred embodiments thereof which fulfil each and every one of the objects of the invention as set forth hereinabove and provide a new and useful door guidance plate for providing directional information of great novelty and utility.

Of course, various changes, modifications and alterations in the teachings of the present invention may be contemplated by those skilled in the art without departing from the intended spirit and scope thereof.

As such, it is intended that the present invention only be limited by the terms of the claims.

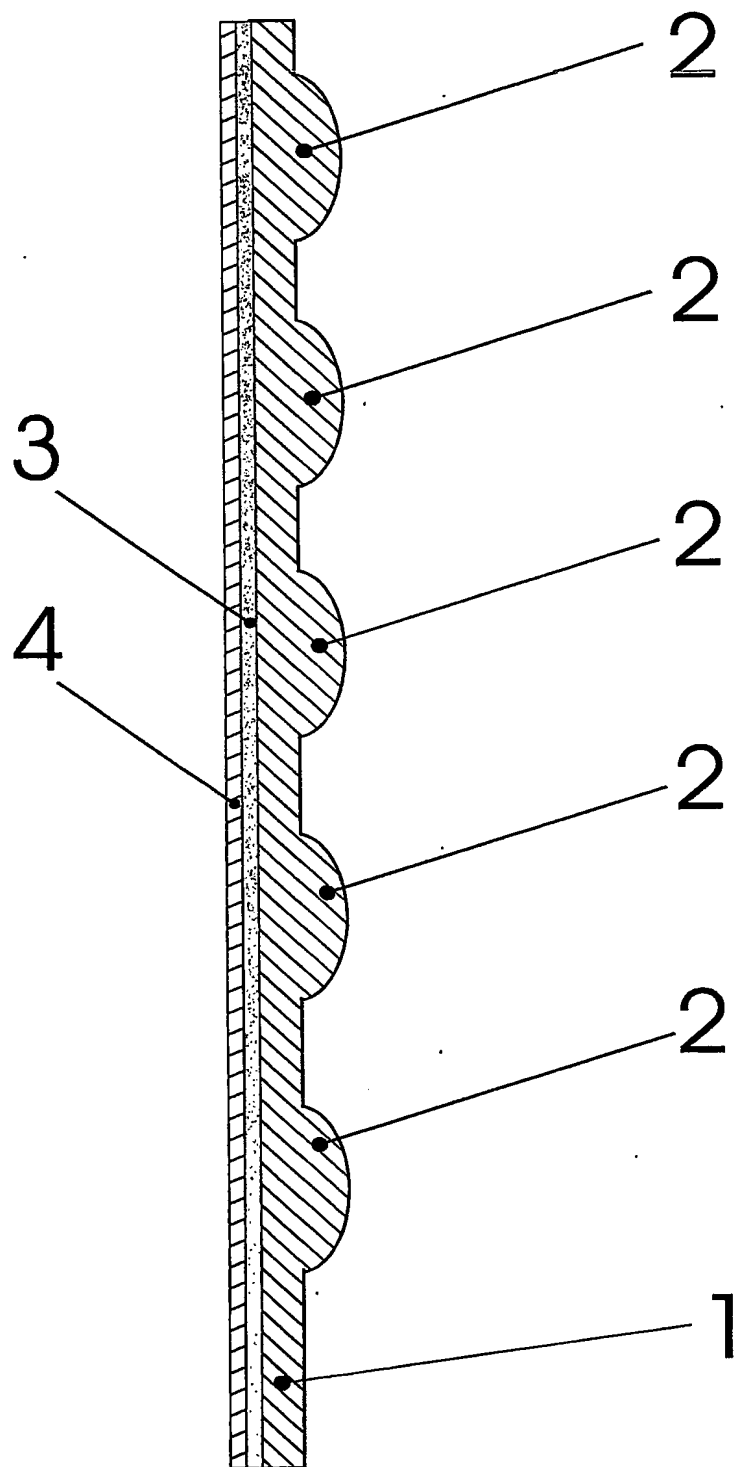
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Figure 1



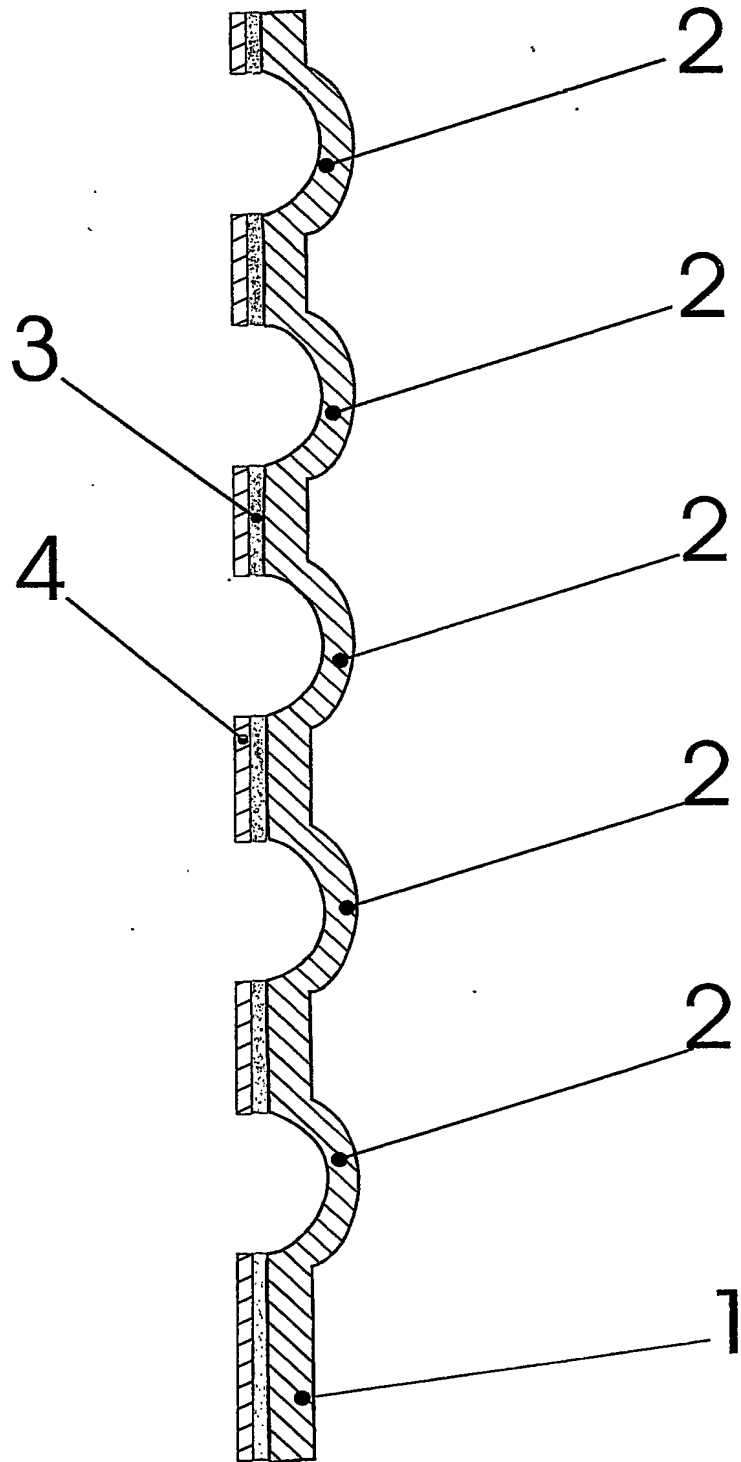
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Figure 2



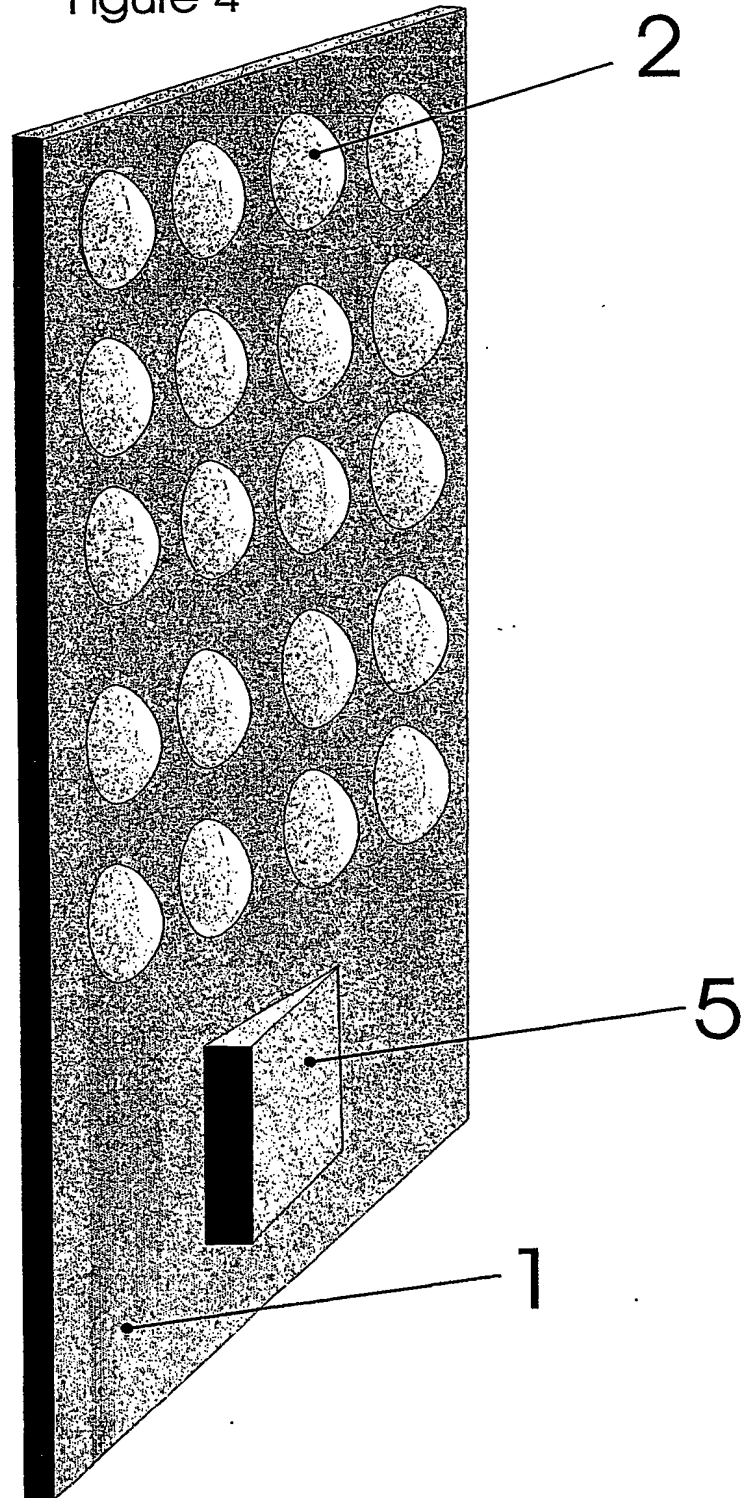
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Figure 3



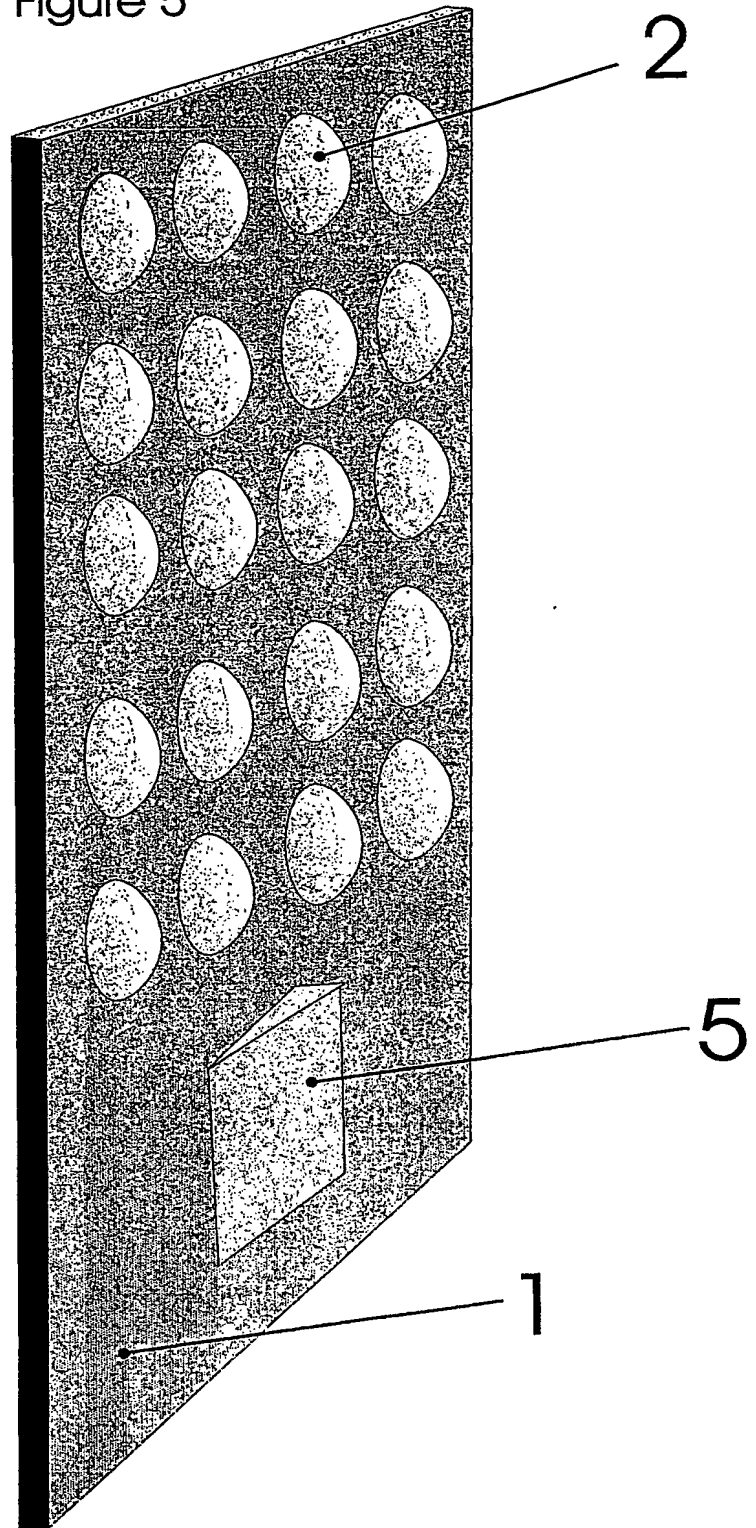
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Figure 4



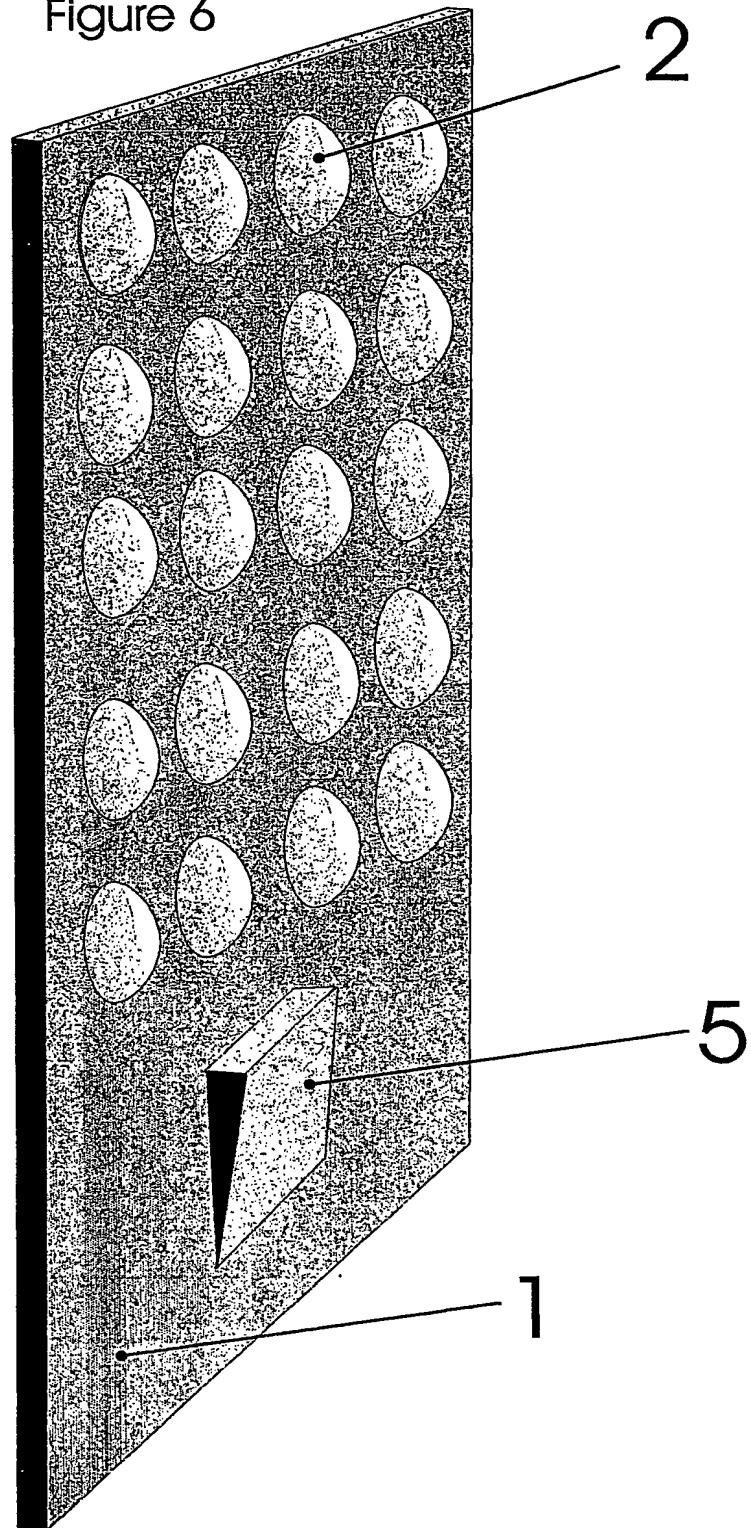
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Figure 5



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Figure 6



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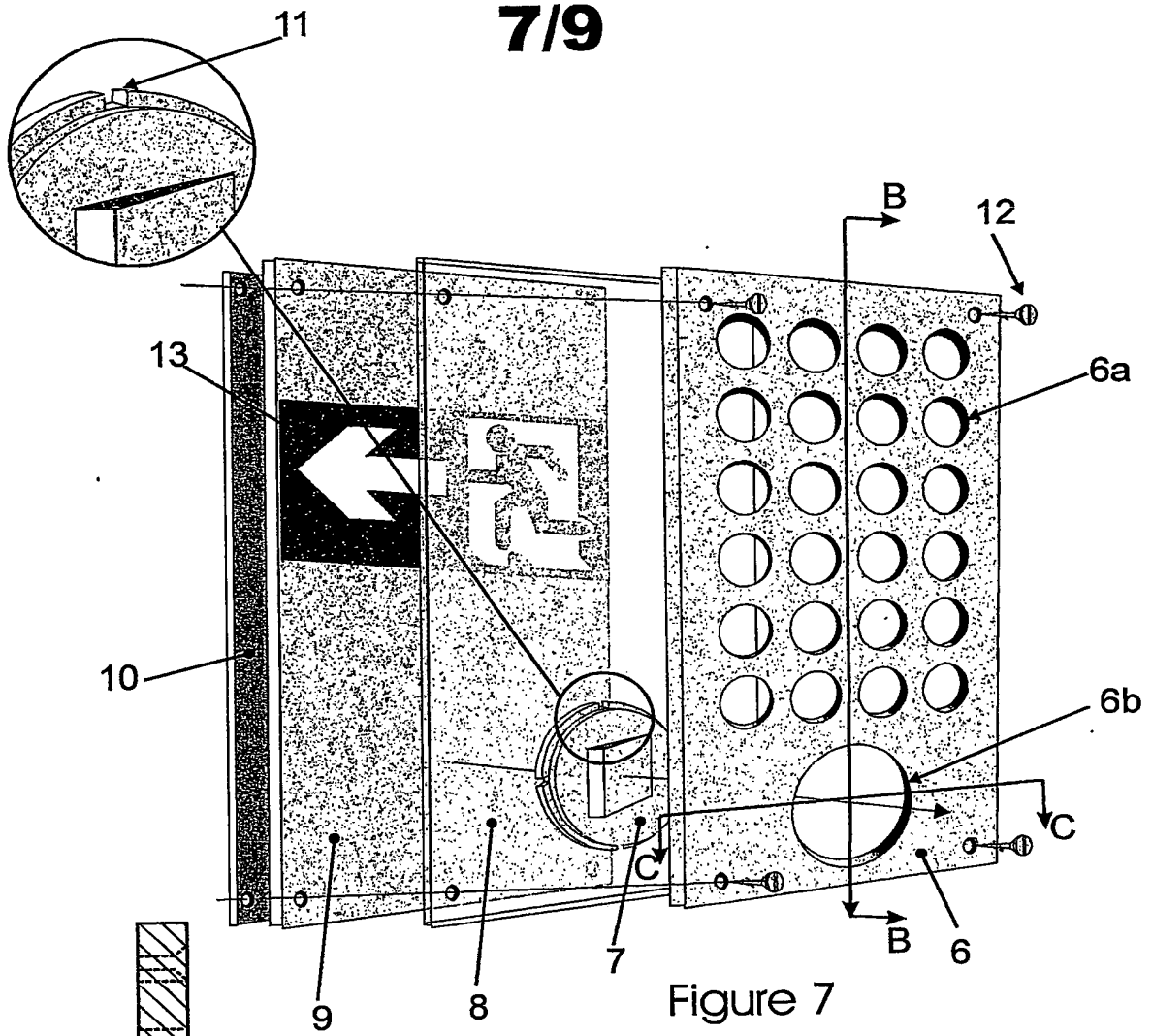


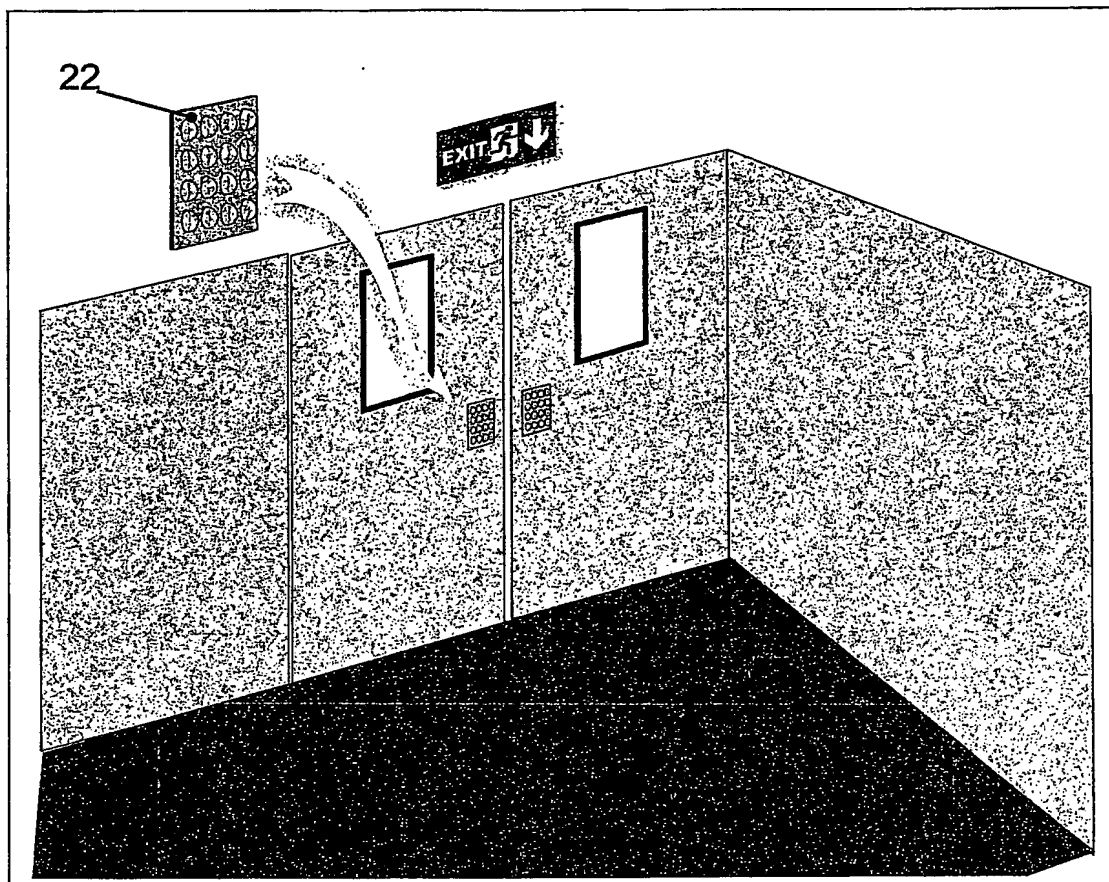
Figure 8



Figure 9

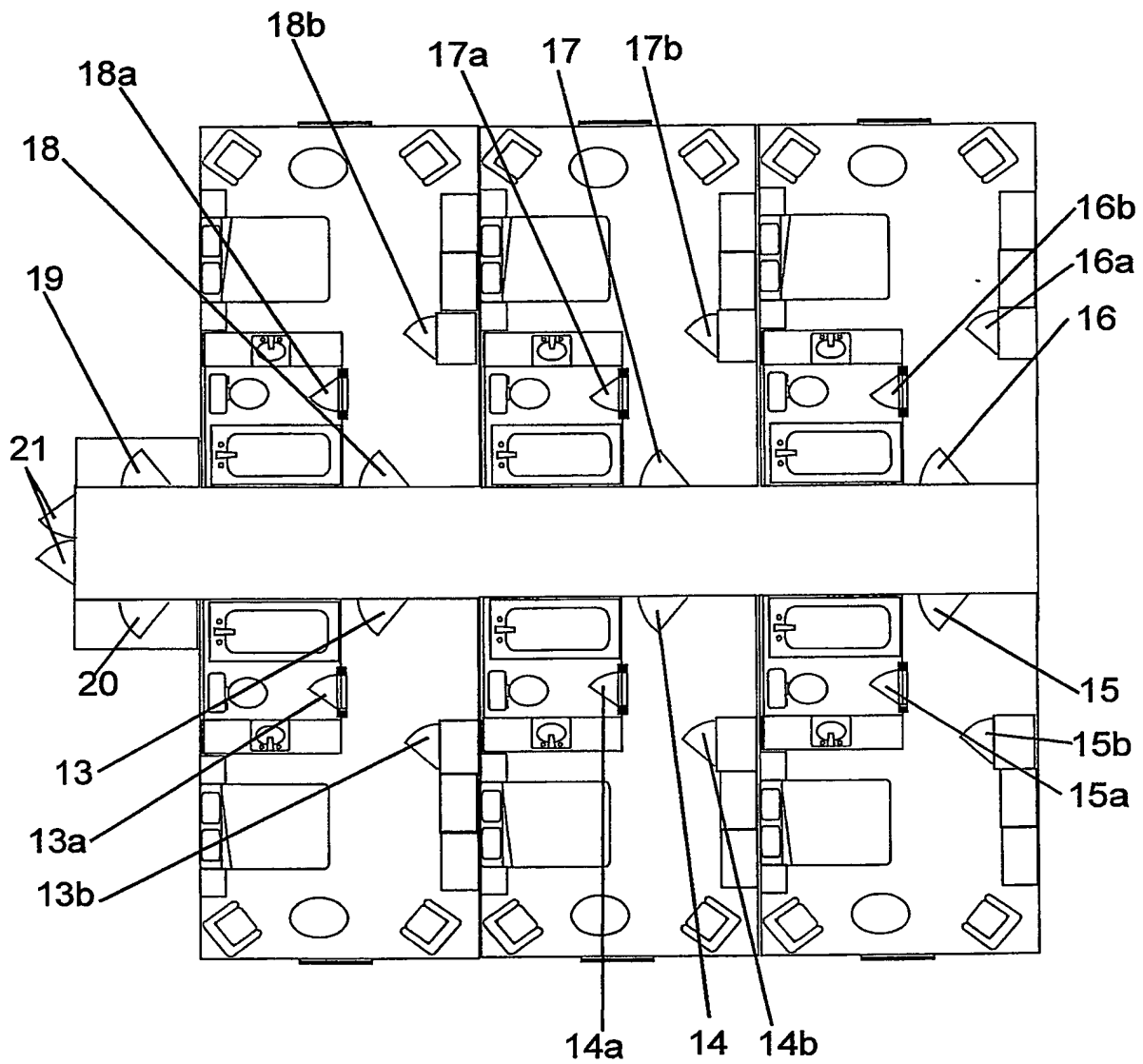
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Figure 10



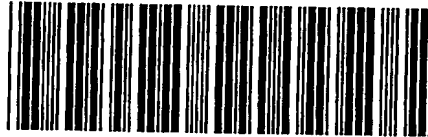
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Figure 11



PCT Application

GB0305213



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